

REMARKS

Claims 1 and 4-13 are pending after entry of this paper. Claims 1 and 4-16 have been rejected. Claims 2, 3, and 14-16 have been cancelled without prejudice. Applicants reserve the right to pursue cancelled claims or subject matter in a continuing application.

Claim 1 has been amended to recite "a drying step of directly drying the extract." Support may be found throughout the originally filed specification, for example, at page 12, lines 5-12 and at page 13, lines 2-5.

No new matter has been introduced by these amendments. Reconsideration and withdrawal of the pending objections and rejections in view of the above claim amendments and below remarks are respectfully requested.

Response to Rejections under 35 U.S.C. § 112

Claim 11 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants respectfully disagree. However, in order to expedite prosecution and without disclaimer of, or prejudice to, applicants have amended claim 11 to delete the expression "preferably 70% by weight or more." Applicants believe that the Examiner's concerns have been addressed and respectfully request reconsideration and withdrawal of the 35 U.S.C. § 112, second paragraph rejection for indefiniteness.

Response to Rejections under 35 U.S.C. § 103

Claims 1, 4-11, and 13-16 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent No. 6,630,195 to Muralidhara, et al. ("Muralidhara") in view of Japanese Patent No. JP 44-6211 B to General Foods Corp. ("General Foods").

Specifically, the Examiner contends that Muralidhara anticipates each and every element of claims 1, 4-11, and 13-16 except that Muralidhara is admittedly silent as to the use of *acid washing protein flakes* and to the starting protein content of the extraction process (Office Action, page 4, para. 13). The Examiner contends that this deficiency of Muralidhara is remedied by General Foods, which allegedly discloses the method of acid washing protein flakes. Therefore, the Examiner contends that it would have been obvious to one of ordinary skill in the art at the time the invention was filed to achieve the allegedly predictable result of removing components other than soy protein as taught by General Foods, i.e., acid washing, before subjecting the soy protein to the counter-current extraction process of Muralidhara. Applicants respectfully disagree. However, in order to expedite prosecution and solely for the purpose of allowance of the instant application, applicants have amended claim 1 to recite a “drying step of directly drying the extract solution.”

Muralidhara describes a method for isolating a soy protein by two essential steps: *i*) an extraction step, for extracting protein from defatted soybean with an aqueous medium at a neutral to alkaline pH by counter-current extraction; and *ii*) an isolation step using membrane filtration, isolating soy protein on a membrane from a clarified extract obtained by the extraction step (col. 5, lns. 36-44 and FIG. 5). As the Examiner has noted at page 4 of the Office Action, Muralidhara discloses an alternative isolation method, which includes an additional step of spray drying the retentate collected on the filtration membranes to form a dry powdered product (col. 16, lines 3-12). However, it is duly noted that this step invariably occurs *after* the membrane filtration step.

General Foods describes a method for isolating soy protein by three essential steps: *i*) an acid-washing step, removing the whey and carbohydrates; *ii*) an extraction step,

extracting protein from the acid-washed soybean slurry; and *iii*) an isolation step using acid-precipitation, isolating the protein from the protein extract obtained by the extraction step (pg. 2, lns. 18-29).

The combination of Muralidhara and General Foods does not teach all of the elements of the instantly claimed method. In fact, Muralidhara in view of General Foods results in a method of *i*) acid washing soy protein flakes, *ii*) protein extraction, necessarily followed by *iii*) either filtration or acid precipitation of soy protein. Applicants assert that Muralidhara does not disclose or suggest, for example, drying the extract directly after the extraction step as recited by instant claim 1. This deficiency is not remedied by the disclosure of General Foods. Therefore, the combination of Muralidhara and General Foods does not make obvious the claimed invention.

Moreover, a skilled artisan, upon reading the disclosures of Muralidhara and General Foods, would not have sufficient guidance to modify the methods of Muralidhara and General Foods to result in the method as instantly claimed. Specifically, by modifying the methods disclose in the cited art to include a step of directly drying the extract directly after the extraction step to ultimately result in an isolated and tasty soy protein having favorable heat gellation properties. Therefore, applicants assert that Muralidhara in view of General Foods does not render obvious the claimed invention because the cited references do not disclose, nor enable, a method which includes an acid-washing step and a counter-current extraction step, where an isolated soy protein with a high degree of purity is ultimately obtained by directly drying the extract from the soy protein extract solution, without conducting any purification step such as acid-precipitation or membrane filtration as disclosed in General Foods and Muralidhara,

respectively. Thus, the claimed method is not obvious in view of the combined disclosure of Muralidhara and General Foods.

The Examiner's attention is further directed to MPEP § 716.02(a) (I) which states: "[a] greater than expected result is an evidentiary factor pertinent to the legal conclusion of obviousness . . . of the claims at issue." In this regard, Muralidhara describes that

[t]he weakness of the gels formed from the samples prepared according to Examples 4-7 is another major observation. . . . **Soy gels at 12-13% w/w/ can have break strengths of up to about 70g** . . . the gel strength of soy isolates is typically low and the four prototypes described in Examples 4-7 are at the low end of the range expected for soy isolates (emphasis added) (Column 26, lines 30-42).

The Examiner has admitted that the gel strength of the isolated soy protein of Muralidhara is lower than that as instantly claimed (Office Action, page 6, para. 19). However, the Examiner contends that the conditions for determining gel strength are not the same and further contends that it would be expected that the soy protein prepared by the process of Muralidhara in view of General Foods would have the same gel strength as instantly recited. Applicants respectfully disagree.

In contrast to the contentions of the Examiner, a skilled artisan would understand that further purifying an extract, i.e., by the membrane filtration or acid-precipitation steps as required by Muralidhara or General Foods, respectively, would remove additional components from the composition that would otherwise be present if the extract were dried directly as claimed. Thus, the combined method of Muralidhara and General Foods would necessarily result in different compositions of isolated soy products compared to that of the claimed method. Applicants assert that the claimed method results in an isolated soy protein having unexpected gelling qualities.

Furthermore, there is no motivation nor a technical demand to selectively choose particular steps of the two methods for producing soy protein, i.e., the methods of General Foods and Muralidhara, and/or to combine or eliminate these particular steps. The two methods comprise quite similar steps; both General Foods and Muralidhara disclose an extraction step with an aqueous medium at a neutral to alkaline pH. Applicants assert that a skilled artisan, not having read the disclosure of the present application, would not readily conceive to eliminate or replace the isolating step by membrane filtration of Muralidhara, (which has i) extraction and ii) membrane filtration, filed in 2001) with the isolating step by acid precipitation of General Foods. The disclosure of Muralidhara, either alone or in combination with General Foods, is not sufficient to render the claimed method obvious.

The Examiner has set forth that

[i]t is not relevant to the instant application that Muralidhara teaches a membrane filtration step following the counter current extraction. Due to the claim language "comprising" there is nothing precluding the inclusion of an additional filtration step following the counter current extraction step but before the isolation step. (Office Action, page 8, para. 30).

However, amended claim 1 recites "a drying step of directly drying the extract solution obtained in the extraction step." The further steps of filtration and acid precipitation after extraction could not be included in the presently claimed method. Instant claim 1 relates to directly drying the extract and not the retentate or precipitate. Thus, applicants assert that the methods disclosed by General Foods and Muralidhara would be inoperable for their intended purposes should they be modified according to the present method, i.e., eliminating the acid precipitation step essential to General Foods or the filtration step essential to Muralidhara.

Applicants respectfully assert that Muralidhara, in view of General Foods, either alone or in combination, does not teach each and every element of the claimed invention. Therefore, for at least the reason that the combination of cited references does not teach a method for isolating soy protein where, after the extraction step, the extract is directly dried, as discussed above, applicants assert that the cited references do not make obvious the claimed invention. Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. §103(a) rejection of claims 1, 4-11, and 13-14. (Applicants note that claims 2, 3, and 14-16 have been cancelled rendering the rejection to these claims moot.)

Claim 12 is rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over U.S. Patent No. 6,630,195 to Muralidhara, et al. ("Muralidhara") in view of Japanese Patent No. JP 44-6211 B to General Foods Corp. ("General Foods"), in view of U.S. Patent No. 4,186,218 to Gomi ("Gomi").

Specifically, the Examiner contends that Muralidhara anticipates each and every element of claim 12 as it depends from claim 1, except that Muralidhara and General Foods are admittedly silent as to the use of an emulsifier in the acid washing step. The Examiner contends that this deficiency of Muralidhara and General Foods is remedied by Gomi, which allegedly discloses the use of an emulsifier including glycerin fatty acid esters, for example, for the processing of soybean flake material. Therefore, the Examiner alleges that because the effects of adding an emulsifier to a solution of soy protein would have known effects, it would have been obvious to one of ordinary skill in the art at the time the invention was filed to achieve the allegedly predictable result of increasing the solubility of the soy protein of General Foods as taught by General Foods in order to improve the efficiency of the acid washing step. Applicants

respectfully disagree. However, applicants believe that the arguments submitted with respect to the §103(a) obviousness rejection over Muralidhara in view of General Foods (see above) are sufficient to overcome the §103(a) obviousness rejection over Muralidhara in view of General Foods in further view of Gomi. For example, Gomi does not disclose or suggest isolating a soy protein directly after an extraction step by drying an extract. Since the disclosure of Gomi does not remedy the deficiencies of Muralidhara and General Foods, Gomi, either alone or in combination with Muralidhara and General Foods, does not render obvious instant claim 12.

In view of the above amendments and arguments, applicants submit that the claims as presented herein are allowable over the art of record. Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. §103(a) obviousness rejection of claim 12.

Dependent Claims

The applicants have not independently addressed all of the rejections of the dependent claims. The applicants submit that for at least similar reasons as to why independent claim 1 from which all of the dependent claims 4-13 depend are believed allowable as discussed *supra*, the dependent claims are also allowable. The applicants however, reserve the right to address any individual rejections of the dependent claims and present independent bases for allowance for the dependent claims should such be necessary or appropriate.

Thus, applicants respectfully submit that the invention as recited in the claims as presented herein is allowable over the art of record, and respectfully request that the respective rejections be withdrawn.

CONCLUSION

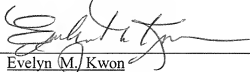
Based on the foregoing amendments and remarks, applicants respectfully request reconsideration and withdrawal of the pending rejections and allowance of this application. The applicants respectfully submit that the instant application is in condition for allowance. Entry of the amendment and an action passing this case to issue is therefore respectfully requested. In the event that a telephone conference would facilitate examination of this application in any way, the Examiner is invited to contact the undersigned at the number provided. Favorable action by the Examiner is earnestly solicited.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. **13-4500**, Order No. 4439-4029.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. **13-4500**, Order No. 4439-4029.

Respectfully submitted,
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